

REMARKS

The forgoing amendment amends claims 18, 23, 25 and 27, and adds new claim 39. Claims 18-23 and 25-39 are pending in this application, claims 1-17 and 24 having been previously canceled. Claims 18, 23, and 25-27 are independent claims.

Applicants thank the Examiner for the helpful comments proffered during the telephone interview on December 18, 2008. Applicants also note with appreciation the indication by the Examiner that claims 29, 33-36 and 38 recite patentable subject matter.

Applicants respectfully submit that the pending claims are in condition for allowance.

Claim Amendments:

Applicants amend independent claim 18 to clarify the flow rate of the one fluid phase of the two or three phase fluid flow in the closed conduit is determined using both the shedding frequency value and the amplitude related value. Support for the amendment to claim 1 can be found in the preamble of claim 18 and through out the specification and figures.

Applicants amend independent claim 23 to correct certain typographical errors.

Applicants amend independent claim 25 to clarify each phase of the fluid refers to each phase of the two phase fluid flow.

Applicants amend independent claim 27 to clarify the shedding frequency and amplitude signal components of are analyzed to monitor a characteristic of the multiple phase fluid flow. Support for the amendment to claim 27 can be found in the preamble of claim 27 and through out the specification and figures.

Claim Rejections under 35 U.S.C. §102(e)

The Examiner rejects claims 18-23, 25-28, 30-32 and 37 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,993,445 to Clarke *et al.* (hereafter “Clarke”). Applicants respectfully traverse the rejection.

For the ease of the discussion below, each related claim set is discussed separately.

The Claimed Invention and Prior Art

The claimed invention is generally directed to a method of monitoring one phase of a two- or three-phase fluid flow utilizing a vortex flowmeter. Instead of suppressing amplitude and periodicity fluctuations, as is conventionally done, the claimed invention analyzes those fluctuations and thus yields valuable information about the flow rate of one phase of the two- or three-phase flow (Application at [0029]).

Clarke is generally directed to a process variable transmitter, implemented in a dual PLL structure, which includes a first PLL having a first bandwidth producing a first output signal, and a second PLL having a second bandwidth narrower than the first bandwidth of the first PLL (Clarke Abstract). Clarke determines the flow rate of a single phase material flow moving through a conduit as a function of the outputs from the dual PLL structure (Clarke at col. 6, lines 8-14). Clarke does not measure the flow rates of individual flows in a two- or three-phase material flow. Notably, Clarke is silent with respect to flow measurements of multiple phase material flows.

I. Claims 18-22

Applicants respectfully submit that Clarke does not disclose *using both said shedding frequency value and the amplitude-related value to determine the flow rate of the one fluid phase of the two or three phase fluid flow in the closed conduit*, which is present in independent claim 18. The Examiner points to Clarke col. 7, line 11 to col. 8, line 19, and col. 9, lines 41-61 as disclosing this feature of claim 18. However, Clarke is silent as to the measurement of multiple phase flows and, hence, silent as to the measurement of the flow rate of the one fluid phase of the two or three phase fluid flow in the closed conduit. As noted above, Clarke does not measure individual flow rates of phase in multiple phase material flows. Clarke calculates the flow rate of a fluid *as a whole*.

Thus, Clarke does not disclose or suggest each and every element of independent claim 18. Claims 19-22 depend from claim 18 and, as such, include each and every patentable element of claim 18. Therefore, Clarke does not disclose or suggest each and every element of claims 19-22.

Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §102(e) rejection of claims 18-22.

II. Claim 23

Independent claim 23 recites an apparatus for monitoring or determining a flow rate of at least one phase of a two or three phase fluid flow that is *calibrated with correlation data correlating, for a plurality of different fluid phase compositions, a plurality of different total volume flow rates with corresponding shedding frequency and amplitude-related values.* As discussed above, Clarke is concerned with a material flow having only a single phase. Clarke is not concerned with a plurality of different fluid phase compositions. Nowhere does Clarke, disclose, teach or suggest a flowmeter calibrated with correlation data correlating, for a plurality of different fluid phase compositions, a plurality of different total volume flow rates with corresponding shedding frequency and amplitude-related values. Thus, Clarke does not disclose each and every element of claim 23.

Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §102(e) rejection of claim 23.

III. Claim 25

Independent claim 25 recites, among other elements, *determining, and recording, for the flowmeter, for a range of total volume flow rates, at a range of different amounts of each phase of the two phase fluid flow.* As discussed above, Clarke is concerned with material flows having only a single phase. As such, Clarke does not disclose, teach or suggest determining, and recording, for the flowmeter, for a range of total volume flow rates, at a range of different amounts of each phase of the two phase fluid flow. Therefore, Clarke does not disclose each and every element of claim 25.

Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §102(e) rejection of claim 25.

IV. Claim 26

Independent claim 26 recites, among other elements, *using a significant change in the amplitude value to detect a change between the fluid having one phase and the fluid having two phases.* As discussed above, Clarke is concerned with material flows having only a single

phase. Consequently, Clarke does not use the amplitude-related value to detect a change between the fluid having one phase and the fluid having two phases. Therefore, Clarke does not disclose each and every element of claim 26.

Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §102(e) rejection of claim 26.

V. Claims 27, 28, 30-32 and 37

Independent claim 27 recites, among other elements, *analysing the shedding frequency and amplitude signal components of signal to monitor a characteristic of the multiple phase fluid flow*. As discussed above, Clarke is concerned with material flows having only a single phase. Nowhere does Clarke disclose, teach or suggest analysing the shedding frequency and amplitude signal components of signal to monitor a characteristic of the multiple phase fluid flow. Therefore, Clarke does not disclose each and every element of claim 27. Claims 28, 30-32 and 37 depend from claim 27, and therefore include each and every element of claim 27. Thus, Clarke does not disclose each and every element of claims 28, 30-32 and 37.

Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the 35 U.S.C. §102(e) rejection of claims 27, 28, 30-32 and 37.

New Claim 39

New claim 39 depends directly or indirectly upon independent claim 18, and therefore incorporates the patentable features of claim 18. Further, new claim 39 adds a further separate patentable feature to the claimed method. That is, new claim 39 adds subject matter concerning determination of the flow rate of one fluid phase individually from a flow rate of a second fluid phase of the two or three phase fluid flow in the closed conduit. Support for new claim 39 can be found on paragraphs 28, 37, 66, 69 and through out the remainder of the Specification. Accordingly, new claim 39 is not anticipated by nor is it rendered obvious by the cited reference. Specifically, Clarke fails to disclose, teach or suggest that the flow rate of the one fluid phase is determined individually from a flow rate of a second fluid phase of the two or three phase fluid flow in the closed conduit. Accordingly, new claim 39 is patentably distinct from each of the cited references either alone or in any combination.

CONCLUSION

In light of the above, Applicant respectfully submits that all of the pending claims are in condition for allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this Application, the Examiner is urged to contact the Applicants' attorney at (617) 227-7400.

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Respectfully submitted,

Electronic signature: /David R. Burns/
David R. Burns
Registration No.: 46,590
LAHIVE & COCKFIELD, LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(617) 227-7400
(617) 742-4214 (Fax)
Attorney/Agent For Applicant